What is Claimed:

1. A stent delivery system for providing support to a stent upon movement of the stent relative to a sheath, said stent delivery system comprising:

a) a stent comprising an inner periphery that defines an interior space extending lengthwise along at least a part of said stent from a proximal end thereof, wherein said stent has at least one segment of relatively low column strength and is adapted to be radially compressed and loaded within said delivery system for introduction into said body lumen and to be expanded for deployment within said body lumen;

b) a sheath overlying the compressed stent during introduction of the stent within the body lumen from a proximal access location to a distal deployment location; and

c) a stabilizer disposed within the stent interior space and adapted to engage the stent inner periphery in a region containing the at least one low-column-strength segment in a manner that enables transmission of longitudinal force to said low-column-strength segment without causing collapse thereof.

2. The stent delivery system of claim 1 wherein the stabilizer is adapted to frictionally engage the stent inner periphery along the length of said stent from a distal to a proximal end of the stent.

3. The stent delivery system of claim 1 wherein the stent comprises a series of longitudinally-displaced peripheral elements and the stabilizer comprises at least one protuberance adapted to engage one of said peripheral elements in a manner capable of imparting a longitudinal force thereto.

4. The stent delivery system of claim 3 wherein the stabilizer comprises a plurality of said protuberances positioned peripherally about said stabilizer such that said stabilizer engages said peripheral element in a plurality of peripheral locations.

5. The stent delivery system of claim 3 wherein each protuberance on said stabilizer is adapted to engage an extended peripheral section of each peripheral element.

6. The stent delivery system of claim 3 wherein the engagement between said at least one protuberance and said peripheral element is a frictional engagement.

7. The stent delivery system of claim 3 wherein said stent comprises one or more areas of open space between said peripheral elements and wherein said at least one protuberance penetrates said open space.

8. The stent delivery system of claim 1 wherein said stabilizer comprises a plurality of radial protuberances axially spaced along said stabilizer underlying said stent from a distal end to a proximal end of the at least one low-column-strength segment of the stent.

9. The stent delivery system of claim 8 wherein the at least one low column strength segment comprises the entire stent.

10. The stent delivery system of claim 8 wherein the stabilizer further comprises an inner core comprising said radial protuberances in the form of rings about said inner core.

11. The stent delivery system of claim 10 wherein the rings have a rectangular cross-section along a longitudinal section through said inner core.

12. The stent delivery system of claim 11 wherein the rings have a distal undercut, a proximal undercut, or both.

13. The stent delivery system of claim 10 wherein the rings have a triangular cross-section along a longitudinal section through said inner core.

14. The stent delivery system of claim 13 wherein said triangular cross-section defines an isosceles triangle having a base parallel to the inner core.

15. The stent delivery system of claim 13 wherein said triangular profile defines a right triangle having a first side orthogonal to the inner core, a second side parallel to the inner core, and a hypotenuse diagonal to the inner core.

16. The stent delivery system of claim 10 wherein the rings are of approximately equal axial length and are spaced evenly underneath the stent.

17. The stent delivery system of claim 10 wherein the stabilizer comprises at least two axial regions, each region having a ring spacing pattern different from an axially adjacent region.

18. The stent delivery system of claim 17 wherein the stent comprises a middle region intermediate said stent distal and proximal ends, said rings on said stabilizer are of approximately equal axial length, and said rings are spaced in a first pattern underlying said stent middle region and spaced in a second pattern underlying the stent adjacent to one or both of said stent distal and proximal ends.

19. The stent delivery system of claim 18 wherein the stabilizer further comprises a set of two rings underlying the stent adjacent to said stent proximal end, said set of two rings being spaced closer together than are said rings underlying said stent middle region and said rings underlying the stent adjacent to said stent distal end.

20. The stent delivery system of claim 18 wherein the stabilizer further comprises a set of three rings underlying the stent adjacent said stent proximal end and a set of three rings underlying the stent adjacent said stent distal end, each set of three rings being spaced closer together than the rings underlying the stent middle region.

21. The stent delivery system of claim 10 wherein the stabilizer comprises at least two axial regions, each region having ring materials of construction different from ring materials of construction in an axially adjacent region.

22. The stent delivery system of claim 21 wherein the ring materials of construction in one region comprise a different resin from ring materials of construction in said axially adjacent region.

23. The stent delivery system of claim 21 wherein the ring materials of construction in one region comprise a different grade of a same resin used as ring materials of construction in an axially adjacent region.

24. The stent delivery system of claim 10 wherein the stent comprises a middle region intermediate to said stent distal and proximal ends and the stabilizer further comprises one or more middle rings underlying said stent middle region, and one or more end rings underlying the stent proximal end, said middle rings each having a length, and the end rings each having a greater length than the middle ring length.

25. The stent delivery system of claim 24 wherein the stabilizer further comprises one or more end rings underlying the stent distal end.

26. The stent delivery system of claim 24 wherein the stabilizer further comprises a set of two rings underlying said stent adjacent said stent proximal end, said set of two rings being spaced closer together than are said rings underlying said stent middle region.

27. The stent delivery system of claim 10 wherein the stent comprises a series of longitudinally-displaced peripheral elements having one or more areas of open space therebetween and wherein said protuberances comprise locking rings that further comprise protrusions that penetrate into said open space.

28. The stent delivery system of claim 3 wherein the radial protuberance comprises a structure selected from the group consisting of at least one of a barb, a bump, and an inflatable knob.

29. The stent delivery system of claim 8 wherein the protuberances are axially and peripherally spaced in a helical pattern along said stabilizer.

30. The stent delivery system of claim 1 wherein the stabilizer further comprises an inner core and a heat-moldable compression sleeve surrounding the inner core, said heat-moldable compression sleeve having an outer surface comprising a plurality of protuberances defined by a thermal imprint of the stent inner periphery on said compression sleeve outer surface.

31. The stent delivery system of claim 30 wherein the inner core and the sheath each comprise a material having a heat deformation temperature greater than a heat deformation temperature of the heat-moldable compression sleeve.

32. The stent delivery system of claim 31 wherein the material is poly-ether-ether-ketone or polyimide.

33. The stent delivery system of claim 1 wherein the stabilizer further comprises an inner core and an injection-molded sleeve surrounding the inner core, said injection-molded sleeve having an outer surface comprising a plurality of protuberances defined by an imprint of the stent inner periphery on said sleeve outer surface.

34. The stent delivery system of claim 1, wherein the stabilizer is adapted to transmit a longitudinal force to said low-column strength segment in the distal direction for deploying said stent.

35. The stent delivery system of claim 1, wherein the stabilizer is adapted to transmit a longitudinal force to said low-column strength segment in the proximal direction for retracting said stent.

36. The stent delivery system of claim 1, wherein the stabilizer is adapted to transmit a longitudinal force to said low-column strength segment in the distal direction for deploying said stent and to transmit a longitudinal force to said low-column strength segment in the proximal direction for retracting said stent.

37. The stent delivery system of claim 1, wherein the stabilizer comprises a surface element having a higher coefficient of static friction than both a coefficient of static friction and a coefficient of dynamic friction of the sheath.

38. The stent delivery system of claim 37, wherein the surface element comprises a continuous element that extends from the distal end to the proximal end of the stent underlying the stent and in contact with the inner periphery of the stent.

39. The stent delivery system of claim 38, wherein the surface element comprises one of: silicone, urethane, pressure-sensitive adhesive, heat-moldable plastic, or low-durometer plastic.

40. The stent delivery system of claim 37, wherein the stabilizer comprises an inner core and said surface element is a covering over said inner core.

41. The stent delivery system of claim 40, wherein said stent comprises one or more wires having a diameter, and said covering has a thickness that is less than said wire diameter.

42. The stent delivery system of claim 40, wherein said stent comprises one or more wires having a diameter, and said covering has a thickness that is greater than or equal to said wire diameter.

43. The stent delivery system of claim 40, wherein said covering comprises a coating on said inner core.

44. The stent delivery system of claim 40, wherein said covering comprises a sleeve affixed to said inner core.

45. The stent delivery system of claim 40, wherein said stabilizer further comprises a plurality of discrete rings of said covering affixed to said inner core and a plurality of uncovered portions of said inner core spaced between said rings.

46. A stent delivery system for providing support to a stent upon movement of the stent relative to a sheath, said stent delivery system comprising:

a) a stent comprising an inner periphery that defines an interior space extending lengthwise along at least a part of said stent from a proximal end thereof, wherein said stent has at least one segment of relatively low column strength and is adapted to be radially compressed and loaded within said delivery system for introduction into said body lumen and to be expanded for deployment within said body lumen;

b) a sheath overlying the compressed stent during introduction of the stent within the body lumen from a proximal access location to a distal deployment

location;

c) a stabilizer disposed within the stent interior space and having means for engaging the stent inner periphery in a region containing said at least one low-column-strength segment in a manner that enables transmission of longitudinal force thereto.

47. The stent delivery system of claim 46 wherein said means for engaging the stent inner periphery extends from a distal to a proximal end of the stent.

48. A stabilizer for providing support to a stent upon movement of the stent relative to a sheath, wherein the stent has an inner periphery defining an interior space and at least one low-column-strength segment, the stabilizer adapted to be disposed within the stent interior space and having means for engaging the stent inner periphery in a manner that enables transmission of longitudinal force to the low-column-strength segment without causing collapse thereof.

49. The stabilizer of claim 48 wherein the stabilizer is for deploying the stent from the stent delivery system.

50. A method of delivering a stent comprising an inner periphery defining an interior space extending lengthwise along at least a part of the stent and comprising at least one segment having a relatively low column strength, the method comprising the steps of:

a) inserting within the body lumen a stent delivery system comprising: a stent radially compressed within the delivery system for introduction into the body lumen; a sheath overlying the compressed stent during introduction into the body lumen; and a stabilizer disposed within the stent interior space and adapted to engage the stent inner periphery in a region containing the low-column-strength segment;

b) urging the stent delivery system through the patient's body to a desired deployment location; and

c) displacing the sheath proximally relative to the stabilizer so that the stabilizer engages the stent, transmits longitudinal force to the low-column-strength segment, and displaces the stent relative to the sheath without causing collapse of the low-column-strength segment.

51. The method of claim 48 further comprising displacing the stabilizer proximally relative to the sheath to retract the stent.

52. The method of claim 50 comprising the stabilizer engaging the stent and transmitting longitudinal force to the low-column-strength segment in a manner selected from the group consisting of: frictionally, mechanically, or a combination thereof.

53. A method of providing a stabilizer adapted to facilitate deployment of a stent from a stent delivery system, the stabilizer having a heat-moldable portion, the stent having an inner periphery defining an interior space extending lengthwise along at least a part of said stent and having a radially compressed configuration for introduction into the body and an expanded configuration for deployment within the body, the stent delivery system comprising the heat-moldable portion of the stabilizer mounted within the interior space of the compressed stent and an outer sheath overlying the compressed stent, the method comprising heating the stent delivery system to thermally imprint the heat-moldable portion with an uneven topography conforming to the stent inner periphery.

54. A method of providing a stabilizer adapted to facilitate deployment of a stent from a stent delivery system, the stent having an inner periphery defining an interior space extending lengthwise along at least a part of said stent and having a radially compressed configuration for introduction into the body and an expanded configuration for deployment within the body, the stent delivery system comprising an inner core of the stabilizer axially disposed within the interior space of the compressed stent and an outer sheath overlying the compressed stent, the method comprising injecting a thermoplastic material around the inner core to fill the interior space and create a sleeve over the inner core, the sleeve having an uneven topography conforming to the stent inner periphery.